

Patent Abstracts of Japan

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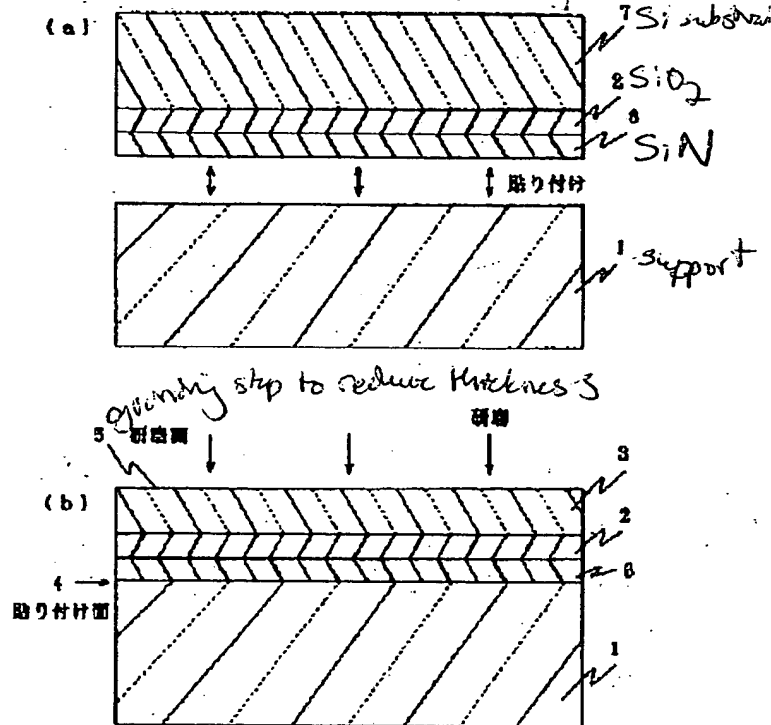
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TITLE : SEMICONDUCTOR SUBSTRATE



ABSTRACT : PURPOSE: To reduce warpage of a substrate by combining insulating films, having different thermal expansion coefficients, so as to obtain a multitude of layers, in an SOI substrate, produced by a substrate bonding method.

CONSTITUTION: A silicon nitride film 6 is deposited by a CVD method after forming a silicon oxide film 2 by oxidizing a silicon substrate 7 by heat. Next, the silicon substrate 7, to which two layers of insulating film are adhered, is bonded to a supporting substrate 1 through a bonding surface 4. Thereafter, the silicon substrate 7 is ground and finished while leaving an element forming layer 3 having a desired thickness. A compressive stress is applied on the silicon oxide film 2 and, therefore, the substrate warps so as to show a convex form when only one layer of the silicon oxide film 2 is used, however, a tensile stress is applied on the silicon nitride film 6 and, therefore, these two layers are combined whereby the warpage of the substrate can be reduced.

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*uses force to reduce stress in SiO2 film
when combined with SiN film, overall warpage/stress is reduced*

- 103 - just needs to track heat treatment has same structure